



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,004	04/30/2001	Robert M. Krupp	5702-01017	3374
26659	7590	12/12/2003	EXAMINER	
DINNIN & DUNN, P.C. 2701 CAMBRIDGE COURT, STE. 500 AUBURN HILLS, MI 48326			LUM, LEE S	
			ART UNIT	PAPER NUMBER
			3611	

DATE MAILED: 12/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

SW

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/846,004	KRUPP ET AL.	
	Examiner	Art Unit	
	Ms. Lee S. Lum	3611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 June 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-19 is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. An Amendment was filed 6/13/03 in which Claims 18 and 19 were also added.

(Incidentally, the Amendment was not in the approved format which requires that all Claims be listed, and indicating their current status.)

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 2A. **Claims 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jorgensen et al 4005876.

Jorgensen discloses a gas generator for a vehicle occupant protection system comprising

Elongated housing 12 having first and second ends (inherent),

Plurality of gas exits 18 spaced along the housing,

Propellant body 10 within, and substantially coextensive with, the housing,

Ignition body 7/8 substantially coextensive, and in physical contact, with the propellant

(Fig 1),

Wherein ignition of the ignition body essentially provides uniform ignition and combustion of the propellant body along the entire length thereof (inherent),

Perforated (perforations 20) sleeve 5 within, and substantially coextensive with, the housing, and,

Plurality of annular filters 11 substantially coextensive within the housing, and encasing the sleeve, each filter corresponding to, and is fixed over at least one exit.

Art Unit: 3611

The reference does not disclose the ignition body as having a burn rate at least twice that of the propellant body, but this characteristic would be dependent on the particular composition of the ignition and propellant bodies, and the desired burn rate. Jorgensen notes in col 2, lines 65-68, that "any number of compositions may be used if they meet the desired requirements for burning rate, nontoxicity, and flame temperature", this disclosure being very well-known in the art. Moreover, these features are application-specific, so clearly would be within the scope of the disclosed invention. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to include parameters defining burn rate as a function of the composition of the ignition material, as a suggestion towards the applicability of the gas generator in different scenarios.

2B. **Claims 6, 7, 10 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jorgensen in view of Lee et al 6315847.

While Jorgensen does not disclose the specifically claimed propellant components, the disclosure provides in col 2, lines 62-67, that "the gas generant material is typically by mixture weight, 55% sodium azide, plus 45% anhydrous chromic chloride. However, any number of compositions may be used if they meet the desired requirements for burning rate, nontoxicity, and flame temperature".

Lee shows the propellant comprising a mixture of  
Silicone at about 10-25% by weight (col 3, lines 27 and 38-39),  
Oxidizer at about 75-90% by weight, including ammonium perchlorate (col 3, lines 51-58).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to replace the material disclosed in Jorgensen with those in as shown in Lee, so as to provide one of a multitude of viable propellant compositions with certain desired ignition and other characteristics, as is suggested by Jorgensen.

Art Unit: 3611

2C. **Claims 8, 9, 11 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jorgensen in view of Lee and Yoshida et al 5827996.

Re **Claims 8, 9** (as best understood) **and 14**, Jorgensen, in view of Lee, does not specify the propellant as including strontium carbonate as a coolant at about 1-30% by weight, while Yoshida shows this element in col 3, lines 52 and 62-63; "also used as...burning control agent", and in col 7, lines 20-24; "burn control agent in an amount of about 0.1 - 50 wt parts".

It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this element, as shown in Yoshida, to provide one of many possible coolant materials for the propellant mixture. And again, as suggested in Jorgensen, and prior art, these materials are selected for achieving desired results.

Re **Claim 11**, the combination of patents disclose the recited elements as previously described.

2D. **Claims 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jorgensen in view of Lee and Yoshida, and in further view of Lundstrom et al 6077371.

The previous patents do not disclose a slag forming element, while Lundstrom shows this element in col 7, lines 4-8, including "alumina...and mixtures thereof...of 0-10% by weight". It would have been obvious to one with ordinary skill in the art at the time the invention was made to include this element, as shown in Lundstrom, to form slag to minimize the formation of solid decomposition products, thus minimize the amount of particulates aggregating in the filters.

Art Unit: 3611

3. ALLOWABLE SUBJECT MATTER

A. **Claim 5** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

B. **Claims 16-19 are allowable.** Prior art does not disclose a gas generator for a vehicle occupant protection system comprising, *inter alia*, a solid unitary propellant body, and coextensive ignition body in physical contact with the propellant body, or an insulator wrapped about the housing, the insulator including gas exits.

4. It is unclear if formal drawings were submitted on 4/30/01 because the element labels are handwritten. If formal drawings were intended to be subsequently submitted, they should be submitted with the Response.

5. ESPONSE TO REMARKS

Generally, Examiner reiterates her rejections as provided above.

Specifically, in response to remarks on pp 4-5, Applicant argues that Jorgensen fails to disclose "an ignition body in physical contact with the propellant". Examiner respectfully disagrees because it is clear that the reference discloses this limitation, where "ignition body" is broadly interpreted as elements 7 and/or 8, and is/are clearly "in physical contact with the propellant". Applicant may be adopting some other interpretation, such as "ignition material in direct physical contact...", (emphasis added) which is not recited. If so, then amendment may be in order.

Applicant is asked to note allowable subject matter.


Art Unit: 3611

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Communication with the Examiner and USPTO

Any inquiry concerning this communication should be directed to Ms. Lum at (703) 305-0232, 9 am-6 pm, M-F. Our fax number is (703) 872-9306. Any inquiry of a general nature, or relating to the status of this application/proceeding should be directed to Customer Assistance at (703) 306-5771.

  
LESLEY D. MORRIS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600

Ms. Lee S. Lum  
Examiner  
12/5/03

